WHAT IS CLAIMED IS:

1. A method of catalysts reduction using non-thermal plasma in which catalysts containing metal compounds are reduced by bringing them into contact with hydrogen-containing gas under a non-thermal plasma state.

2. The method as in claim 1, wherein said non-thermal plasma is generated by dielectric barrier discharge.

3. The method as in claim 1, wherein the plasma energy that is required to vary depending on the types of metals is regulated by the magnitude of power via voltage regulation.

4. The method as in claim 2, wherein the plasma energy that is required to vary depending on the types of metals is regulated by the magnitude of power via voltage regulation.

5. The method as in claim 1, wherein said reduction method is conducted in conjunction with existing methods of gaseous hydrogen reduction by heating, electrochemical reduction methods, or methods of reduction by adding organic or inorganic reducing agents.

6. The method as in claim 2, wherein said reduction method is conducted in conjunction with existing methods of gaseous hydrogen reduction by heating, electrochemical reduction methods, or methods of reduction by adding organic or inorganic reducing agents.